

09/873,075

09/873075

~~ CProject ~~

CProjectData Cutinase variant

10038.200-US \_\_\_\_ ~~~ CProtein1Sequence H. insolens  
cutinase Humicola insolens~\* QLGAIENGLE SG SANACPDA ILIFARGSTE PGNM GITVGP  
AL ANGLES HI RNIWIQGVGG 60  
PYD AALATNF LPRG TSQANI DEG KRLFALA NQKCPNTPVV AGGYSQGAAL IAAAVSEL SG 120  
AV KEQVKGV A LFGYTQNLQN RG GIPNYPRE RT KVFCNVGD AV CTGT LIIT PAHLSY TIEA 180  
RGEAARFLRD RIRA  
194 ARNDBCQEZHILKMF PSTWYVX PRT ~~ CComment F  
e ature ? N-terminal  
ext ension Artificial/Unknown AAVDSNHTPAVPELVAR ARNDBCQEZHILKMF PSTWYVX  
PRT ? ~~  
COtherFeature

misc\_feature N-terminal extension ~~

CDNASequence 620AM34 Artificial/Unknown\*gagtactatcttgcatttgta ctaggattttagtg  
aacttgc agctrymks wbdhv n DNA ?

?

misc\_feature 620AM34

? Dop2-  
R Artificial/Unknown gacccc tggatccag agctrymks wbdhv n DNA  
?

?

misc\_feature Dop2-R

? Dop83-  
2 Artificial/Unknown Wcgga acatctggatccaggcgtcrstggcc ttac rmddwn cndnygn cdmbdaacd h  
tkyrcgcggg cacctcg caggcaac agctrymks wbdhv n DNA  
?

?

misc\_feature Dop83-2

?

misc\_feature n denotes a, g, c, or t 43 43  
?

misc\_feature n denotes a, g, c, or t 46 46  
?

misc\_feature n denotes a, g, c, or t 49 49  
?

modified\_base See text 63 25  
? 680AM35 Artificial/Unknown)atggttatggatttcggggattcttcgagcgtccaaacc  
agctrymks wbdhv n DNA ?  
?

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NEWS 13 Jul 22 USAN to be reloaded July 28, 2002;  
saved answer sets no longer valid  
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now available on STN  
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NEWS 21 Aug 19 The MEDLINE file segment of TOXCENTER has been reloaded  
NEWS 22 Aug 26 Sequence searching in REGISTRY enhanced  
NEWS 23 Sep 03 JAPIO has been reloaded and enhanced  
NEWS 24 Sep 16 Experimental properties added to the REGISTRY file  
NEWS 25 Sep 16 CA Section Thesaurus available in CAPLUS and CA  
NEWS 26 Oct 01 CASREACT Enriched with Reactions from 1907 to 1985  
NEWS 27 Oct 21 EVENTLINE has been reloaded  
NEWS 28 Oct 24 BEILSTEIN adds new search fields  
NEWS 29 Oct 24 Nutraceuticals International (NUTRACEUT) now available on STN  
NEWS 30 Oct 25 MEDLINE SDI run of October 8, 2002  
NEWS 31 Nov 18 DKILIT has been renamed APOLLIT  
NEWS 32 Nov 25 More calculated properties added to REGISTRY  
NEWS 33 Dec 02 TIBKAT will be removed from STN  
NEWS 34 Dec 04 CSA files on STN  
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NEWS 36 Dec 17 TOXCENTER enhanced with additional content  
NEWS 37 Dec 17 Adis Clinical Trials Insight now available on STN  
NEWS 38 Dec 30 ISMEC no longer available  
NEWS 39 Jan 13 Indexing added to some pre-1967 records in CA/CAPLUS  
NEWS 40 Jan 21 NUTRACEUT offering one free connect hour in February 2003  
NEWS 41 Jan 21 PHARMAML offering one free connect hour in February 2003  
NEWS 42 Jan 29 Simultaneous left and right truncation added to COMPENDEX,  
ENERGY, INSPEC  
NEWS 43 Feb 13 CANCERLIT is no longer being updated  
NEWS 44 Feb 24 METADEX enhancements  
NEWS 45 Feb 24 PCTGEN now available on STN  
NEWS 46 Feb 24 TEMA now available on STN  
NEWS 47 Feb 26 NTIS now allows simultaneous left and right truncation  
NEWS 48 Feb 26 PCTFULL now contains images  
NEWS 49 Mar 04 SDI PACKAGE for monthly delivery of multifile SDI results

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|--------------|---|
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| NEWS LOGIN   | Welcome Banner and News Items   |
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ENTRY SESSION  
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FILE COVERS 1907 - 6 Mar 2003 VOL 138 ISS 10  
FILE LAST UPDATED: 5 Mar 2003 (20030305/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s koeller, ?/au  
L1 285 KOELLER, ?/AU

=> s yao, ?/au  
L2 20834 YAO, ?/AU

=> s l1 and l2

≡> d

L3 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2003 ACS

AN 1995:464191 CAPLUS

DN 122:260765

TI Diversity of cutinases from plant pathogenic fungi: different cutinases are expressed during saprophytic and pathogenic stages of *Alternaria*

AU brassicicola  
AU Yao, Chenglin; Koeller, Wolfram  
CS Department Plant Pathology, Cornell University, Geneva, NY, 14456, USA  
SO Molecular Plant-Microbe Interactions (1995), 8(1), 122-30  
CODEN: MPMIEL; ISSN: 0894-0282  
PB American Phytopathological Society  
DT Journal  
LA English

=> s alternaria  
L4 6 ALERNARIA

=> d 1-6

L4 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2003 ACS  
AN 2000:859224 CAPLUS  
DN 134:292860  
TI Constitutive hydrolytic enzymes are associated with polygenic resistance  
of tomato to Alternaria solani and may function as an elicitor release  
mechanism  
AU Lawrence, Christopher B.; Singh, Narendra P.; Qiu, Jianseng; Gardner,  
Randolph G.; Tuzun, Sadik  
CS Department of Plant Pathology, Auburn University, Auburn, AL, 36849-5409,  
USA  
SO Physiological and Molecular Plant Pathology (2000), 57(5), 211-220  
CODEN: PMPPEZ; ISSN: 0885-5765  
PB Academic Press  
DT Journal  
LA English

RE.CNT 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2003 ACS  
AN 1993:212692 CAPLUS  
DN 118:212692  
TI New derivatives of 2-methylenebutanedioic acid, useful as fungicides, and  
method of their preparation  
IN Veverka, Miroslav  
PA Czech.  
SO Czech., 7 pp.  
CODEN: CZXXA9  
DT Patent  
LA Slovak  
FAN.CNT 1

| PATENT NO.           | KIND | DATE     | APPLICATION NO. | DATE     |
|----------------------|------|----------|-----------------|----------|
| PI CS 274008         | B1   | 19910411 | CS 1988-4496    | 19880627 |
| PRAI CS 1988-4496    |      | 19880627 |                 |          |
| OS MARPAT 118:212692 |      |          |                 |          |

L4 ANSWER 3 OF 6 CAPLUS COPYRIGHT 2003 ACS  
AN 1992:190795 CAPLUS  
DN 116:190795  
TI Biosynthesis of alterporriol A by Alternaria porri  
AU Ohnishi, Keiichiro; Tanabe, Hirosuke; Hayashi, Satoshi; Suemitsu, Rikisaku  
CS Fac. Eng., Doshisha Univ., Kyoto, 602, Japan  
SO Bioscience, Biotechnology, and Biochemistry (1992), 56(1), 42-3  
CODEN: BBBIEJ; ISSN: 0916-8451  
DT Journal  
LA English

L4 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2003 ACS  
AN 1978:439146 CAPLUS  
DN 89:39146  
TI Indoleacetic acid synthesis and virulence of two races of Alternaria  
macrospora Zimm  
AU Bhaskaran, R.  
CS Dep. Plant Pathol., Tamil Nadu Agric. Univ., Coimbatore, India

SO Indian Journal of Farm Sciences (1975), 3, 106-7  
CODEN: IJFSBT; ISSN: 0253-715X

DT Journal  
LA English

L4 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2003 ACS

AN 1974:26094 CAPLUS

DN 80:26094

TI Black tea liquor

IN Tomikanahara, Takashi; Motoda, Setsuji; Shibata, Ariyasu

PA Institute of Physical and Chemical Research

SO Jpn. Tokkyo Koho, 5 pp.

CODEN: JAXXAD

DT Patent

LA Japanese

FAN.CNT 1

| PATENT NO.         | KIND | DATE     | APPLICATION NO. | DATE     |
|--------------------|------|----------|-----------------|----------|
| PI JP 48016636     | B4   | 19730523 | JP 1969-30609   | 19690419 |
| PRAI JP 1969-30609 |      | 19690419 |                 |          |

L4 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2003 ACS

AN 1965:439025 CAPLUS

DN 63:39025

OREF 63:6977b-g

TI Pyrrole derivatives

PA Societa Farmaceutici Italia

SO 8 pp.

DT Patent

LA Unavailable

FAN.CNT 1

| PATENT NO.     | KIND | DATE     | APPLICATION NO. | DATE |
|----------------|------|----------|-----------------|------|
| PI NL 64008458 |      | 19650127 | NL              |      |
| PRAI IT        |      | 19630726 |                 |      |

=> dis his

(FILE 'HOME' ENTERED AT 12:12:16 ON 06 MAR 2003)

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L1 285 S KOELLER, ?/AU

L2 20834 S YAO, ?/AU

L3 1 S L1 AND L2

L4 6 S ALERNARIA

=> log h

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NEWS 13 Jul 22 USAN to be reloaded July 28, 2002;  
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NEWS 17 Aug 08 PHARMAMarketLetter(PHARMAML) - new on STN  
NEWS 18 Aug 08 NTIS has been reloaded and enhanced  
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NEWS 48 Feb 26 PCTFULL now contains images  
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=> s cutinase (10a) (variant or mutat?)  
L1 131 CUTINASE (10A) (VARIANT OR MUTAT?)

=> s l1 and (thermo? or temperat?)  
10 FILES SEARCHED...  
L2 48 L1 AND (THERMO? OR TEMPERAT?)

=> s l1 and fung?  
L3 57 L1 AND FUNG?

=> s l2 and l3  
L4 22 L2 AND L3

=> dup rem 14  
PROCESSING COMPLETED FOR L4  
L5 14 DUP REM L4 (8 DUPLICATES REMOVED)

=> d 1-14

L5 ANSWER 1 OF 14 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI  
AN 2002-12006 BIOTECHDS  
TI Variant of parent Termamyl-like alpha amylase, useful in detergent compositions, for starch liquefaction, ethanol production, washing and/or dish washing, and textile desizing;  
recombinant enzyme production, vector expression in host cell, polymerase chain reaction and mutagenesis  
AU THISTED T; KJAERULFF S; ANDERSEN C; FUGLSANG C C  
PA NOVOZYMES AS  
PI WO 2002010355 7 Feb 2002  
AI WO 2000-DK488 1 Aug 2000  
PRAI DK 2001-655 26 Apr 2001  
DT Patent  
LA English  
OS WPI: 2002-280633 [32]

L5 ANSWER 2 OF 14 WPIDS (C) 2003 THOMSON DERWENT  
AN 2002-280633 [32] WPIDS  
DNC C2002-082551  
TI Variant of parent Termamyl-like alpha amylase, useful in detergent compositions, for starch liquefaction, ethanol production, washing and/or dish washing, and textile desizing.  
DC B04 D13 D16 D25 E17 F06  
IN ANDERSEN, C; FUGLSANG, C C; KJAERULFF, S; THISTED, T  
PA (NOVO) NOVOZYMES AS  
CYC 96  
PI WO 2002010355 A2 20020207 (200232)\* EN 90p C12N009-00  
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
NL OA PT SD SE SL SZ TR TZ UG ZW  
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK  
DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR  
KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU  
SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW  
AU 2001078415 A 20020213 (200238) C12N009-00  
US 2002155574 A1 20021024 (200273) C12N009-28  
ADT WO 2002010355 A2 WO 2001-DK488 20010712; AU 2001078415 A AU 2001-78415  
20010712; US 2002155574 A1 Provisional US 2000-225140P 20000814,  
Provisional US 2000-233986P 20000920, Provisional US 2000-249104P  
20001116, Provisional US 2001-286869P 20010426, US 2001-918543 20010731  
FDT AU 2001078415 A Based on WO 200210355  
PRAI DK 2001-655 20010426; DK 2000-1160 20000801; DK 2000-1354  
20000912; DK 2000-1687 20001110  
IC ICM C12N009-00; C12N009-28  
ICS C12N005-06; C12N009-30; C12P021-02

L5 ANSWER 3 OF 14 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.  
AN 2002:234659 BIOSIS  
DN PREV200200234659  
TI Cutinase-peptide fusions in thermoseparating aqueous two-phase systems. Prediction of partitioning and enhanced tag efficiency by detergent addition.  
AU Nilsson, Anna; Mannesse, Maurice; Egmond, Maarten R.; Tjerneld, Folke (1)

CS (1) Department of Biochemistry, Lund University, S-221 00, Lund, Sweden  
folke.tjerneld@biokem.lu.se  
SO Journal of Chromatography A, (8 February, 2002) Vol. 946, No. 1-2, pp.  
141-155. http://www.elsevier.nl/inca/publications/store/5/0/2/6/8/8/index.  
htt. print.

ISSN: 0021-9673.

DT Article  
LA English

L5 ANSWER 4 OF 14 SCISEARCH COPYRIGHT 2003 ISI (R) DUPLICATE 1  
AN 2002:978831 SCISEARCH  
GA The Genuine Article (R) Number: 619QG  
TI Studies on ferulic acid esterase activity in **fungal** lipases and  
cutinases  
AU Andersen A (Reprint); Svendsen A; Vind J; Lassen S F; Hjort C; Borch K;  
Patkar S A  
CS Novozymes AS, Dept Prot Chem, DK-2880 Bagsvaerd, Denmark  
CYA Denmark  
SO COLLOIDS AND SURFACES B-BIOINTERFACES, (SEP 2002) Vol. 26, No. 1-2, pp.  
47-55.  
Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM,  
NETHERLANDS.  
ISSN: 0927-7765.

DT Article; Journal  
LA English  
REC Reference Count: 38  
**\*ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS\***

L5 ANSWER 5 OF 14 HCPLUS COPYRIGHT 2003 ACS DUPLICATE 2  
AN 2001:886490 HCPLUS  
DN 136:33925  
TI Cutinase variants with improved  
thermostability and their use in textile treatments  
IN Svendsen, Allan; Glad, Sanne O. S.; Fukuyama, Shiro; Matsui, Tomoko  
PA Novozymes A/s, Den.  
SO PCT Int. Appl., 41 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 2

| PATENT NO.   | KIND  | DATE     | APPLICATION NO. | DATE     |
|--|-------|----------|-----------------|----------|
| -----  | ----- | -----    | -----           | -----    |
| PI WO 2001092502   | A1    | 20011206 | WO 2001-DK350   | 20010522 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,<br>CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM,<br>HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,<br>LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO,<br>RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN,<br>YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,<br>DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,<br>BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG |       |          |                 |          |

PRAI DK 2000-861 A 20000602  
DK 2000-1577 A 20001023  
DK 2000-1772 A 20001124  
DK 2001-100 A 20010119

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 14 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.  
AN 2001:313694 BIOSIS  
DN PREV200100313694  
TI Engineering the pH-optimum of a triglyceride lipase: From predictions  
based on electrostatic computations to experimental results.  
AU Neves-Petersen, Maria Teresa; Petersen, Evamaria I.; Fojan, Peter;  
Noronha, Melinda; Madsen, Rune G.; Petersen, Steffen B. (1)  
CS (1) Biostucture and Protein Engineering Group, Department of Life  
Sciences, Aalborg University, Sohngaardsholmsvej 49, DK-9000, Aalborg:  
steffen.petersen@bio.auc.dk, www.protein.auc.dk Denmark

-This  
application

SO Journal of Biotechnology, May, 2001) Vol. 87, No. 3, pp. 5-254.  
print.  
ISSN: 0168-1656.

DT Article  
LA English  
SL English

L5 ANSWER 7 OF 14 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.DUPLICATE  
3

AN 2001:473058 BIOSIS

DN PREV200100473058

TI DSC studies of Fusarium solani pisi cutinase: Consequences for stability  
in the presence of surfactants.

AU Creveld, Lucia D.; Meijberg, Wim; Berendsen, Herman J. C.; Pepermans,  
Henri A. M. (1)

CS (1) Unilever Research, Olivier van Noortlaan 120, 3133 AT, Vlaardingen:  
rik.pepermans@unilever.com Netherlands

SO Biophysical Chemistry, (30 August, 2001) Vol. 92, No. 1-2, pp. 65-75.  
print.

ISSN: 0301-4622.

DT Article  
LA English  
SL English

L5 ANSWER 8 OF 14 HCPLUS COPYRIGHT 2003 ACS DUPLICATE 4

AN 2000:401975 HCPLUS

DN 133:39881

TI Cutinase variants with improved  
thermostability and their use in textile treatments

IN Abo, Masanobu; Fukuyama, Shiro; Svendsen, Allan; Matsui, Tomoko

PA Novo Nordisk A/S, Den.

SO PCT Int. Appl., 79 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

| PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|--|------|----------|-----------------|----------|
| PI WO 2000034450   | A1   | 20000615 | WO 1999-DK678   | 19991203 |
| W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU,<br>CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,<br>IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,<br>MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,<br>SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM,<br>AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,<br>DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,<br>CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG |      |          |                 |          |
| BR 9915832   | A    | 20010821 | BR 1999-15832   | 19991203 |
| EP 1137761   | A1   | 20011004 | EP 1999-957265  | 19991203 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,<br>IE, SI, LT, LV, FI, RO   |      |          |                 |          |
| PRAI DK 1998-1604  | A    | 19981204 |                 |          |
| US 1998-111591P  | P    | 19981209 |                 |          |
| DK 1999-330  | A    | 19990309 |                 |          |
| US 1999-124671P  | P    | 19990316 |                 |          |
| WO 1999-DK678  | W    | 19991203 |                 |          |

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 9 OF 14 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI  
AN 2000-12956 BIOTECHDS

TI Thermostable variant of parent fungal  
cutinase useful for dyeing polyester yarn or fabric, comprises  
substitution of amino acid residues at predetermined positions from the  
N-terminal amino acid;

method is useful improving the functional finish of a polymer of  
ethyleneglycol and terephthalic acid

AU Abo M; Fukuyama S; Svendsen A; Matsui T

PA Novo-Nordisk  
LO Bagsvaerd, Denmark.  
PI WO 2000034450 15 Jun 2000  
AI WO 1999-DK678 3 Dec 1999  
PRAI US 1999-124671 16 Mar 1999; DK 1998-1604 4 Dec 1998  
DT Patent  
LA English  
OS WPI: 2000-482424 [42]

L5 ANSWER 10 OF 14 MEDLINE DUPLICATE 5  
AN 2001326906 MEDLINE  
DN 21287777 PubMed ID: 11394565  
TI Extraction of peptide tagged cutinase in detergent-based aqueous two-phase systems.  
AU Rodenbrock A; Selber K; Egmond M R; Kula M R  
CS Institute of Enzyme Technology, Heinrich-Heine University, Julich, Germany.  
SO BIOSEPARATION, (2000) 9 (5) 269-76.  
Journal code: 9011423. ISSN: 0923-179X.  
CY Netherlands  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 200110  
ED Entered STN: 20011015  
Last Updated on STN: 20011015  
Entered Medline: 20011011

L5 ANSWER 11 OF 14 HCAPLUS COPYRIGHT 2003 ACS  
AN 1997:257475 HCAPLUS  
DN 126:234442  
TI An in vivo recombination method for increased efficiency of preparation of active variants of proteins  
IN Okkels, Jens Sigurd  
PA Novo Nordisk A/s, Den.; Okkels, Jens Sigurd  
SO PCT Int. Appl., 65 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 2

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|---|------|----------|-----------------|----------|
| PI WO 9707206   | A1   | 19970227 | WO 1996-DK344   | 19960812 |
| W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM |      |          |                 |          |
| RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA  |      |          |                 |          |
| AU 9666554  | A1   | 19970312 | AU 1996-66554   | 19960812 |
| CN 1192782  | A    | 19980909 | CN 1996-196213  | 19960812 |
| EP 1213350  | A2   | 20020612 | EP 2002-2150    | 19960812 |
| EP 1213350  | A3   | 20021204 |                 |          |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI   |      |          |                 |          |
| PRAI DK 1995-907  | A    | 19950811 |                 |          |
| DK 1995-1047  | A    | 19950920 |                 |          |
| EP 1996-926325  | A3   | 19960812 |                 |          |
| WO 1996-DK344   | W    | 19960812 |                 |          |

L5 ANSWER 12 OF 14 HCAPLUS COPYRIGHT 2003 ACS  
AN 1997:259788 HCAPLUS  
DN 126:234419  
TI Generation of variant polypeptides by in vivo recombination between linear DNAs  
IN Okkels, Jens Sigurd  
PA Novo Nordisk A/s, Den.; Okkels, Jens Sigurd  
SO PCT Int. Appl., 67 pp.  
CODEN: PIXXD2

DT Patent  
LA English

FAN.CNT 2

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO.  | DATE     |
|------|---|------|----------|--|----------|
| PI   | WO 9707205  | A1   | 19970227 | WO 1996-DK343  | 19960812 |
|      | W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM |      |          | RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA |          |
|      | AU 9666553  | A1   | 19970312 | AU 1996-66553  | 19960812 |
|      | EP 843725   | A1   | 19980527 | EP 1996-926325   | 19960812 |
|      | EP 843725   | B1   | 20020417 |  |          |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI   |      |          |  |          |
|      | CN 1192782  | A    | 19980909 | CN 1996-196213   | 19960812 |
|      | JP 11510700   | T2   | 19990921 | JP 1996-508841   | 19960812 |
|      | AT 216427   | E    | 20020515 | AT 1996-926325   | 19960812 |
|      | EP 1213350  | A2   | 20020612 | EP 2002-2150   | 19960812 |
|      | EP 1213350  | A3   | 20021204 |  |          |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, PT, IE, FI   |      |          |  |          |
| PRAI | DK 1995-907   | A    | 19950811 |  |          |
|      | DK 1995-1047  | A    | 19950920 |  |          |
|      | EP 1996-926325  | A3   | 19960812 |  |          |
|      | WO 1996-DK343   | W    | 19960812 |  |          |

L5 ANSWER 13 OF 14 HCAPLUS COPYRIGHT 2003 ACS

AN 1997:240584 HCAPLUS

DN 126:222277

TI Recombinant lipases with C- and/or N-terminal extensions and their use in detergents

IN Fuglsang, Claus Crone; Okkels, Jens Sigurd; Petersen, Dorte Aaby; Patkar, Shamkant Anant; Thellersen, Marianne; Vind, Jesper; Halkier, Torben; Joergensen, Steen Troels; et al.

PA Novo Nordisk A/s, Den.; Fuglsang, Claus Crone; Okkels, Jens Sigurd; Petersen, Dorte Aaby; Patkar, Shamkant Anant; Thellersen, Marianne; Vind, Jesper; Halkier, Torben

SO PCT Int. Appl., 191 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 4

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO.  | DATE     |
|------|---|------|----------|--|----------|
| PI   | WO 9704079  | A1   | 19970206 | WO 1996-DK322  | 19960712 |
|      | W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG |      |          | RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA |          |
|      | AU 9664141  | A1   | 19970218 | AU 1996-64141  | 19960712 |
|      | EP 839186   | A1   | 19980506 | EP 1996-923878   | 19960712 |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, FI   |      |          |  |          |
|      | CN 1193346  | A    | 19980916 | CN 1996-196371   | 19960712 |
|      | JP 2001526523   | T2   | 20011218 | JP 1997-506185   | 19960712 |
|      | US 6495357  | B1   | 20021217 | US 1998-7288   | 19980114 |
| PRAI | DK 1995-832   | A    | 19950714 |  |          |
|      | DK 1995-1013  | A    | 19950913 |  |          |
|      | DK 1995-1096  | A    | 19950929 |  |          |
|      | DK 1995-1306  | A    | 19951121 |  |          |
|      | US 1996-11634P  | P    | 19960214 |  |          |
|      | DK 1996-372   | A    | 19960401 |  |          |
|      | US 1996-20461P  | P    | 19960507 |  |          |
|      | DK 1995-905   | A    | 19950811 |  |          |
|      | US 1996-11627P  | P    | 19960214 |  |          |
|      | DK 1996-374   | A    | 19960401 |  |          |

US 1996-16754P P 19960717  
WO 1996-DK322 W 19960712  
WO 1996-DK341 A2 19960812

L5 ANSWER 14 OF 14 HCAPLUS COPYRIGHT 2003 ACS  
AN 1997:220628 HCAPLUS  
DN 126:208956  
TI Recombinant lipases with C- and/or N-terminal extensions and their use in detergents  
IN Fuglsang, Claus Crone; Okkels, Jens Sigurd; Pertersen, Dorte Aaby; Patkar, Shamkant Anant; Thellersen, Marianne; Vind, Jesper; Halkier, Torben; Joergensen, Steen Troels; et al.  
PA Novo Nordisk A/s, Den.; Fuglsang, Claus Crone; Okkels, Jens Sigurd; Pertersen, Dorte Aaby; Patkar, Shamkant Anant; Thellersen, Marianne; Vind, Jesper; Halkier, Torben  
SO PCT Int. Appl., 197 pp.  
CODEN: PIXXD2  
DT Patent  
LA English  
FAN.CNT 4

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|---|------|----------|-----------------|----------|
| PI WO 9704078   | A1   | 19970206 | WO 1996-DK321   | 19960712 |
| W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG |      |          |                 |          |
| RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA  |      |          |                 |          |
| AU 9664140  | A1   | 19970218 | AU 1996-64140   | 19960712 |
| CN 1193346  | A    | 19980916 | CN 1996-196371  | 19960712 |
| PRAI DK 1995-832  | A    | 19950714 |                 |          |
| DK 1995-1013  | A    | 19950913 |                 |          |
| DK 1995-1096  | A    | 19950929 |                 |          |
| DK 1995-1306  | A    | 19951121 |                 |          |
| US 1996-11634P  | P    | 19960214 |                 |          |
| DK 1996-372   | A    | 19960401 |                 |          |
| US 1996-20461P  | P    | 19960507 |                 |          |
| WO 1996-DK321   | W    | 19960712 |                 |          |

=> d 1, 8, 9 ab

L5 ANSWER 1 OF 14 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI  
AB DERWENT ABSTRACT:  
NOVELTY - A variant (I) of a parent Termamyl-like alpha-amylase, comprising an alteration at one or more positions (P), having alpha-amylase activity, is new.  
DETAILED DESCRIPTION - (P) includes positions 49, 60, 104, 132, 161, 170, 176, 180, 181, 183, 200, 203, 204, 207, 212, 237, 239, 250, 280, 298, 318, 374, 385, 393, 402, 406, 427, 430, 440, 447 or 482. The alteration(s) are independently selected from an insertion at downstream position of the amino acid at (P), deletion of an amino acid at (P) or substitution of an amino acid at (P) with other amino acid, where each position corresponds to a position of the amino acid sequence of the parent Termamyl-like alpha-amylase comprising a sequence (S1) of 483 amino acids fully defined in the specification. INDEPENDENT CLAIMS are also included for the following: (1) a DNA construct (II) comprising a DNA sequence encoding (I); (2) a recombinant expression vector (III) comprising (II); (3) a cell (IV) which is transformed with (II) or (III); (4) a composition (C) comprising (I); and (5) a detergent composition (DC) comprising (I).  
BIOTECHNOLOGY - Preferred Variant: (I) has one or more of the mutations given in the specification using S1 for the numbering. The parent Termamyl-like alpha-amylase is derived from a strain of *Bacillus licheniformis* (S1), *B.amyloliquefaciens* (comprising a sequence of 483 amino acids fully defined in the specification) and *B.stearothermophilus* (comprising a sequence of 515 amino acids fully defined in the specification). The parent Termamyl-like alpha-amylase is selected from

SP690, SP722, AA560, 707 alpha-amylase and KSM-AP1378 (all sequences comprising 485 amino acids fully defined in the specification). The parent alpha-amylase has at least 60%, preferably 90% identity to S1, and is encoded by a nucleic acid sequence which hybridizes under low, medium or high stringency conditions with a nucleic acid sequence comprising 1920 nucleotides fully defined in the specification. Preferred Cell: (IV) is a microorganism such as bacterium or fungus. The bacterium is *B.subtilis*, *B.licheniformis*, *B.lentus*, *B.brevis*, *B.stearothermophilus*, *B.alkalophilus*, *B.amyloliquefaciens*, *B.coagulans*, *B.circulans*, *B.lautus* or *B.thuringiensis*. Preferred Composition: (C) further comprises *B.stearothermophilus* (BSG) alpha-amylase in particular SP961, in a ratio of 1:10-10:1, preferably 1:2. (C) further comprises a glycoamylase, pullulanase and/or a phytase. DC further comprises protease, lipase, peroxidase, amylolytic enzyme glucoamylase, maltogenic amylase, CGTase, mannanase, cutinase, laccase and/or a cellulase. Preparation: The variant is prepared by standard genetic recombinant techniques.

USE - (I) is used for starch liquefaction, ethanol production, washing and/or dish washing, and textile desizing (claimed).

ADVANTAGE - (I) has altered stability in particular at high temperatures from 70-120 degrees C and/or low pH in the range from pH 4.0-6.0.

EXAMPLE - To improve the stability at low pH and low calcium concentration of the parent *Bacillus licheniformis* alpha-amylase, error-prone polymerase chain reaction (PCR) mutagenesis was performed. The plasmid pDN1528 encoding wild-type *B.licheniformis* alpha-amylase gene was utilized as template to amplify the gene with primers, 22149 (5'-CGATTGCTGACGCTGTATTTGCG-3') and 2814 (5'-GATCACCCGCGATAACCGTC-3') under PCR conditions where increased error rates leads to introduction of random point mutations. The resultant PCR fragment was purified on gel and used in a PCR-based multimerization step with a gel purified vector fragment created by PCR amplification of pDN1528 with primers 24 (5'-GAATGTATGCGGCCGGCAAAACGCCGGTGA-3') and 27 (5'-GCCGCCGCTGCTGCAGAATGAGGCAGCAAG-3') forming an overlap to the insert fragment. The multimerization reaction was subsequently introduced into *B.subtilis*. The error-prone library was screened in the low pH filter assay. Clones testing positive upon rescreening was submitted to secondary screening for stability in the liquid assay. (90 pages)

L5 ANSWER 8 OF 14 HCAPLUS COPYRIGHT 2003 ACS DUPLICATE 4  
AB Variants of fungal cutinases have improved

thermostability. The variants comprise substitution of one or more amino acid residues near the N-terminal in the amino acid sequence or in the three-dimensional structure of the cutinase. Thus, substitution mutants of *Humicola insolens* cutinase were prep'd. These mutants displayed enhanced thermostability. The enzymes were used for removal of cyclic polyethyleneterephthalate from textiles, for textile dyeing, and for redn. of malodors on textiles.

L5 ANSWER 9 OF 14 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI  
AB A new thermostable variant (I) of a parent fungal-cutinase is claimed. (I) contains substitutions of one or more amino acid residues at a position (p) located within 17 angstrom or within 20 positions from the N-terminal amino acid. Also claimed are: a DNA sequence (II) encoding (I); a vector (III) containing (II); a transformed host cell harboring (II) or (III); a method for the preparation/construction of (I); a surfactant composition containing a surfactant and (I); and detecting cutinase activity in a sample, by incubating the sample with terephthalic acid bis(2-hydroxyethyl)ester dibenzoate and detecting hydrolysis of the ester. (I) is useful for dyeing polyester fabric or yarn. The method involves enzymatic hydrolysis at 65-75 deg, of a cyclic oligomer, e.g. cyclic tri(ethylene terephthalate) of poly(ethylene terephthalate) present in and on the fiber of polyester containing fabric or yarn. (I) is also useful for improving the functional finish of a polymer of ethyleneglycol and terephthalic acid containing yarn or fabric. (I) is useful in surfactant to improve the removal of fatty soiling and in baking industries, and paper making industries. (79pp)

=> dis his

(FILE 'HOME' ENTERED AT 19:58:59 ON 04 MAR 2003)

FILE 'MEDLINE, SCISEARCH, LIFESCI, BIOTECHDS, BIOSIS, EMBASE, HCAPLUS,  
NTIS, ESBIOBASE, BIOTECHNO, WPIDS' ENTERED AT 19:59:06 ON 04 MAR 2003

L1        131 S CUTINASE (10A) (VARIANT OR MUTAT?)  
L2        48 S L1 AND (THERMO? OR TEMPERAT?)  
L3        57 S L1 AND FUNG?  
L4        22 S L2 AND L3  
L5        14 DUP REM L4 (8 DUPLICATES REMOVED)

=> s l3 not l4  
L6        35 L3 NOT L4

=> dup rem 16  
PROCESSING COMPLETED FOR L6  
L7        24 DUP REM L6 (11 DUPLICATES REMOVED)

=> d 1-10

L7        ANSWER 1 OF 24 HCAPLUS COPYRIGHT 2003 ACS  
AN        2003:58203 HCAPLUS  
DN        138:133154  
TI        Subtilase variants with improved stability, catalytic activity or wash  
          performance for use in detergents  
IN        Fano, Tina Sejersgard; Von der Osten, Claus; Krueger, Malene Kappen;  
          Norregaard-Madsen, Mads  
PA        Novozymes A/S, Den.  
SO        PCT Int. Appl., 66 pp.  
          CODEN: PIXXD2  
DT        Patent  
LA        English  
FAN.CNT 1

| PATENT NO.              | KIND   | DATE     | APPLICATION NO. | DATE     |
|-------------------------|--|----------|-----------------|----------|
| PI        WO 2003006602 | A2   | 20030123 | WO 2002-DK485   | 20020711 |
| W:                      | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,<br>CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,<br>GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,<br>LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,<br>PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,<br>UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,<br>TJ, TM |          |                 |          |
| RW:                     | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,<br>CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,<br>PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,<br>NE, SN, TD, TG  |          |                 |          |

PRAI DK 2001-1090      A      20010712

L7        ANSWER 2 OF 24 HCAPLUS COPYRIGHT 2003 ACS  
AN        2002:293829 HCAPLUS  
DN        136:321289  
TI        Subtilase variants with decreased sensitivity to trypsin inhibitors  
          present in egg stains  
IN        Norregaard-Madsen, Mads; Larsen, Line Bloch; Hansen, Peter Kamp  
PA        Novozymes A/S, Den.  
SO        PCT Int. Appl., 93 pp.  
          CODEN: PIXXD2  
DT        Patent  
LA        English  
FAN.CNT 1

| PATENT NO.              | KIND  | DATE     | APPLICATION NO. | DATE     |
|-------------------------|---|----------|-----------------|----------|
| PI        WO 2002031133 | A1  | 20020418 | WO 2001-DK667   | 20011012 |
| W:                      | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,<br>CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,<br>GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, |          |                 |          |

LS, LT, LU, LV, MA, MG, MK, MN, MW, MX, MZ, NO, PH, PL,  
PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,  
UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,  
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,  
BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2002010379 A5 20020422 AU 2002-10379 20011012

US 2002155575 A1 20021024 US 2001-976414 20011012

PRAI DK 2000-1528 A 20001013  
US 2000-241201P P 20001017  
WO 2001-DK667 W 20011012

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 3 OF 24 HCAPLUS COPYRIGHT 2003 ACS

AN 2001:453240 HCAPLUS

DN 135:62103

TI Subtilase variants having an improved wash performance on egg stains

IN Fano, Tina Sejersgaard; Mikkelsen, Frank F.

PA Novozymes A/S, Den.

SO PCT Int. Appl., 137 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

|    | PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|----|--|------|----------|-----------------|----------|
| PI | WO 2001044452  | A1   | 20010621 | WO 2000-DK660   | 20001201 |
|    | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,<br>CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,<br>HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,<br>LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,<br>SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU,<br>ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,<br>DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,<br>BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG |      |          |                 |          |
|    | EP 1244779   | A1   | 20021002 | EP 2000-979461  | 20001201 |
|    | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,<br>IE, SI, LT, LV, FI, RO, MK, CY, AL, TR   |      |          |                 |          |

PRAI DK 1999-1792 A 19991215

DK 2000-708 A 20000501

DK 2000-1527 A 20001013

WO 2000-DK660 W 20001201

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 4 OF 24 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI

AN 2001-06778 BIOTECHDS

TI Engineering the pH optimum of a triglyceride lipase: from predictions  
based on electrostatic computations to experimental results;  
Fusarium solani pisi cutinase enzyme engineering

AU Neves-Petersen M T; Petersen E I; Fojan P; Moronha M; Madsen R G;  
\*Petersen S B

CS Univ.Aalborg; Inst.Super.Tech.Lisbon; Univ.Lisbon-Tech.

LO The Biostructure and Protein Engineering Group, Department of Life  
Sciences, Aalborg University, Sohngaardsholmsvej 49, DK-9000 Aalborg,  
Denmark.

Email: steffen.petersen@bio.auc.dk

SO J.Biotechnol.; (2001) 87, 3, 225-54

CODEN: JBITD4 ISSN: 0168-1656

DT Journal

LA English

L7 ANSWER 5 OF 24 HCAPLUS COPYRIGHT 2003 ACS

AN 2000:441898 HCAPLUS

DN 133:86106

TI Variants of I-S1 and I-S2 sub-groups of subtilisin having an additional  
amino acid residue in the active site loop region showing greatly improved

IN wash performance

IN Andersen, Vilbour Kim; Mikkeisen, Frank; Hansen, Kamp Peter; Andersen,  
Carsten; Norregaard-Madsen, Mads

PA Novo Nordisk A/S, Den.

SO PCT Int. Appl., 72 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

|      | PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|------|--|------|----------|-----------------|----------|
| PI   | WO 2000037599  | A1   | 20000629 | WO 1999-DK714   | 19991220 |
|      | W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU,<br>CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,<br>IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,<br>MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,<br>SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ,<br>BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,<br>DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,<br>CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG |      |          |                 |          |
|      | CA 2355580   | AA   | 20000629 | CA 1999-2355580 | 19991220 |
|      | BR 9916351   | A    | 20010918 | BR 1999-16351   | 19991220 |
|      | EP 1141205   | A1   | 20011010 | EP 1999-960944  | 19991220 |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,<br>IE, SI, LT, LV, FI, RO   |      |          |                 |          |
|      | JP 2002533066  | T2   | 20021008 | JP 2000-589656  | 19991220 |
| PRAI | DK 1998-1674   | A    | 19981218 |                 |          |
|      | WO 1999-DK714  | W    | 19991220 |                 |          |

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 6 OF 24 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI  
AN 2001-13245 BIOTECHDS

TI Fusarium solani pisi cutinase;  
enzyme characterization; a review

AU Egmond M R; de Vlieg J

CS Unilever

LO Unilever Research Laboratory, Olivier van Noortlaan 120, 3133 AT  
Vlaardingen, The Netherlands.

Email: maarten.egremond@unilever.com

SO Biochimie; (2000) 82, 11, 1015-21

CODEN: BICMBE ISSN: 0300-9084

DT Journal

LA English

L7 ANSWER 7 OF 24 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI  
AN 2000-07601 BIOTECHDS

TI Genetic engineering of the Fusarium solani pisi lipase cutinase for  
enhanced partitioning in PEG-phosphate aqueous two-phase systems;  
including the construction of seven different cutinase  
lipase variants containing various C-terminal peptide  
extensions

AU Bandmann N; Collet E; Leijen J; Uhlen M; Veide A; \*Nygren P A  
CS Roy.Inst.Technol.Stockholm

LO Department of Biotechnology, Royal Institute of Technology (KTH),  
Teknikringen 30, SE-100 44 Stockholm, Sweden.

Email: perake@biochem.kth.se

SO J.Biotechnol.; (2000) 79, 2, 161-72

CODEN: JBITD4 ISSN: 0168-1656

DT Journal

LA English

L7 ANSWER 8 OF 24 HCPLUS COPYRIGHT 2003 ACS

AN 1999:189188 HCPLUS

DN 130:219878

TI Protease variants and compositions for use in detergents

IN Hansen, Peter Kamp; Bauditz, Peter; Mikkelsen, Frank; Andersen, Kim  
Vilbour

PA Novo Nordisk A/S, Den.  
SO PCT Int. Appl., 70 pp.  
CODEN: PIXXD2

DT Patent  
LA English

FAN.CNT 1

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---|------|----------|-----------------|----------|
| PI   | WO 9911770  | A1   | 19990311 | WO 1998-DK361   | 19980819 |
|      | W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,<br>DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG,<br>KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,<br>NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,<br>UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,<br>FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,<br>CM, GA, GN, GW, ML, MR, NE, SN, TD, TG |      |          |                 |          |
|      | CA 2301785  | AA   | 19990311 | CA 1998-2301785 | 19980819 |
|      | AU 9890618  | A1   | 19990322 | AU 1998-90618   | 19980819 |
|      | EP 1007646  | A1   | 20000614 | EP 1998-942501  | 19980819 |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, FI   |      |          |                 |          |
|      | BR 9811396  | A    | 20000822 | BR 1998-11396   | 19980819 |
|      | JP 2001514847   | T2   | 20010918 | JP 2000-508781  | 19980819 |
| PRAI | DK 1997-988   | A    | 19970829 |                 |          |
|      | WO 1998-DK361   | W    | 19980819 |                 |          |

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 9 OF 24 HCAPLUS COPYRIGHT 2003 ACS

AN 1999:189187 HCAPLUS

DN 130:206698

TI Protease variants and compositions for use in detergents

IN Hansen, Peter Kamp; Bauditz, Peter; Mikkelsen, Frank; Andersen, Kim  
Vilbour

PA Novo Nordisk A/S, Den.

SO PCT Int. Appl., 69 pp.  
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---|------|----------|-----------------|----------|
| PI   | WO 9911769  | A1   | 19990311 | WO 1998-DK360   | 19980819 |
|      | W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,<br>DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG,<br>KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,<br>NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,<br>UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,<br>FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,<br>CM, GA, GN, GW, ML, MR, NE, SN, TD, TG |      |          |                 |          |
|      | CA 2301767  | AA   | 19990311 | CA 1998-2301767 | 19980819 |
|      | AU 9890617  | A1   | 19990322 | AU 1998-90617   | 19980819 |
|      | EP 1012251  | A1   | 20000628 | EP 1998-942500  | 19980819 |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, FI   |      |          |                 |          |
|      | BR 9811412  | A    | 20000822 | BR 1998-11412   | 19980819 |
|      | JP 2001514846   | T2   | 20010918 | JP 2000-508780  | 19980819 |
| PRAI | DK 1997-987   | A    | 19970829 |                 |          |
|      | WO 1998-DK360   | W    | 19980819 |                 |          |

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 10 OF 24 HCAPLUS COPYRIGHT 2003 ACS

AN 1999:189186 HCAPLUS

DN 130:206697

TI Protease variants and compositions for use in detergents

IN Hansen, Peter Kamp; Bauditz, Peter; Mikkelsen, Frank; Andersen, Kim  
Vilbour

PA Novo Nordisk A/S, Den.

SO PCT Int. Appl., 67 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---|------|----------|-----------------|----------|
| PI   | WO 9911768  | A1   | 19990311 | WO 1998-DK359   | 19980819 |
|      | W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,<br>DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG,<br>KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,<br>NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,<br>UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,<br>FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,<br>CM, GA, GN, GW, ML, MR, NE, SN, TD, TG |      |          |                 |          |
|      | CA 2301851  | AA   | 19990311 | CA 1998-2301851 | 19980819 |
|      | AU 9887981  | A1   | 19990322 | AU 1998-87981   | 19980819 |
|      | EP 1009815  | A1   | 20000621 | EP 1998-939486  | 19980819 |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, FI   |      |          |                 |          |
|      | JP 2002515221   | T2   | 20020528 | JP 2000-508779  | 19980819 |
| PRAI | DK 1997-986   | A    | 19970829 |                 |          |
|      | WO 1998-DK359   | W    | 19980819 |                 |          |

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d 6 ab

L7 ANSWER 6 OF 24 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI  
AB Cutinase from Fusarium solani pisi was characterized in detail with respect to its structural and functional properties. The crystal structure of the enzyme was solved to high atomic resolution 1 Angstrom, while data on structural dynamics were obtained from detailed NMR studies. Functional data were mainly derived from kinetic studies using substrate analogs that simplify the kinetic behavior. The properties of wild-type cutinase are reviewed and discussed with respect to the effects brought about by site-directed variants of the enzyme.  
Cutinase is an interesting enzyme that can be applied in a wide variety of systems ranging from surfactants to food and chemical industries. By enzyme engineering several of its drawbacks can be removed without affecting the desired traits of this versatile enzyme. (30 ref)

=> FIL STNGUIDE

COST IN U.S. DOLLARS

| SINCE FILE ENTRY | TOTAL SESSION |
|------------------|---------------|
|------------------|---------------|

FULL ESTIMATED COST

|       |       |
|-------|-------|
| 64.21 | 64.42 |
|-------|-------|

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

| SINCE FILE ENTRY | TOTAL SESSION |
|------------------|---------------|
|------------------|---------------|

CA SUBSCRIBER PRICE

|       |       |
|-------|-------|
| -0.65 | -0.65 |
|-------|-------|

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FILE CONTAINS CURRENT INFORMATION.

LAST RELOADED: Feb 28, 2003 (20030228/UP).

=> d 11-24

YOU HAVE REQUESTED DATA FROM FILE 'MEDLINE, BIOTECHDS, BIOSIS, HCPLUS' - CONTINUE? (Y)/N:y

L7 ANSWER 11 OF 24 HCPLUS COPYRIGHT 2003 ACS

AN 1999:48790 HCPLUS

DN 130:106943

TI Variants of Humicola family endo-1,4-.beta.-glucanases CelA and CelB and their use in cleaning compositions  
IN Lund, Henrik; Nielsen, Jack Bech; Schulein, Martin; Damgaard, Bo; Andersen, Kim Vilbour  
PA Novo Nordisk A/S, Den.  
SO PCT Int. Appl., 271 pp.  
CODEN: PIXXD2

DT Patent  
LA English

FAN.CNT 1

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|---|------|----------|-----------------|----------|
| PI WO 9901544   | A1   | 19990114 | WO 1998-DK299   | 19980702 |
| W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,<br>DK, EE, ES, FI, GB, GE, GH, GM, GW, HR, HU, ID, IL, IS, JP, KE,<br>KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW,<br>MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR,<br>TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,<br>FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,<br>CM, GA, GN, ML, MR, NE, SN, TD, TG |      |          |                 |          |
| AU 9879088  | A1   | 19990125 | AU 1998-79088   | 19980702 |
| EP 1002061  | A1   | 20000524 | EP 1998-929249  | 19980702 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, FI   |      |          |                 |          |
| PRAI DK 1997-813  |      | 19970704 |                 |          |
| WO 1998-DK299   |      | 19980702 |                 |          |

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 12 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.  
AN 1999:203606 BIOSIS  
DN PREV199900203606  
TI Interfacial binding of cutinase rather than its catalytic activity determines the steady state interfacial tension during oil drop lipid hydrolysis.  
AU Flipsen, J. A. C.; van Schaick, M. A.; Dijkman, R.; van der Hijden, H. T. W. M.; Verheij, H. M.; Egmond, M. R. (1)  
CS (1) Unilever Research Vlaardingen, 3130 AC, Vlaardingen Netherlands  
SO Chemistry and Physics of Lipids, (March, 1999) Vol. 97, No. 2, pp. 181-191.  
ISSN: 0009-3084.  
DT Article  
LA English  
SL English

L7 ANSWER 13 OF 24 HCPLUS COPYRIGHT 2003 ACS  
AN 1998:324873 HCPLUS  
DN 129:2165  
TI Subtilase variants with modified autoproteolytic stability for use in detergents  
IN Von der Osten, Claus; Halkier, Torben; Andersen, Carsten; Bauditz, Peter; Hansen, Peter Kamp  
PA Novo Nordisk A/S, Den.  
SO PCT Int. Appl., 100 pp.  
CODEN: PIXXD2

DT Patent  
LA English

FAN.CNT 1

| PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|---|------|----------|-----------------|----------|
| PI WO 9820116   | A1   | 19980514 | WO 1997-DK500   | 19971104 |
| W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,<br>DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR,<br>KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,<br>PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG,<br>UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR,<br>GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA,<br>GN, ML, MR, NE, SN, TD, TG |      |          |                 |          |

|   |    |          |                |          |
|---|----|----------|----------------|----------|
| AU 9747731  | A1 | 1998-09  | AU 1997-47731  | 1997-04  |
| EP 932667   | A1 | 1999-04  | EP 1997-910275 | 19971104 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, FI |    |          |                |          |
| CN 1235637  | A  | 19991117 | CN 1997-199372 | 19971104 |
| BR 9712878  | A  | 20000201 | BR 1997-12878  | 19971104 |
| JP 2001503269   | T2 | 20010313 | JP 1998-520961 | 19971104 |
| US 6300116  | B1 | 20011009 | US 1997-963851 | 19971104 |
| KR 2000053071   | A  | 20000825 | KR 1999-703986 | 19990504 |
| US 2002102702   | A1 | 20020801 | US 2001-948080 | 20010906 |
| PRAI DK 1996-1235   | A  | 19961104 |                |          |
| DK 1996-1240  | A  | 19961105 |                |          |
| DK 1997-284   | A  | 19970314 |                |          |
| US 1997-963851  | A3 | 19971104 |                |          |
| WO 1997-DK500   | W  | 19971104 |                |          |

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 14 OF 24 HCAPLUS COPYRIGHT 2003 ACS

AN 1998:324872 HCAPLUS

DN 129:2164

TI Subtilase variants at amino acid positions Tyr-167 and Arg-170 for improved was performance in detergents

IN Hansen, Peter Kamp; Von der Osten, Claus; Bauditz, Peter

PA Novo Nordisk A/S, Den.; Hansen, Peter Kamp; Von der Osten, Claus; Bauditz, Peter

SO PCT Int. Appl., 81 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

|      | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE     |
|------|---|------|----------|-----------------|----------|
| PI   | WO 9820115  | A1   | 19980514 | WO 1997-DK493   | 19971031 |
|      | W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,<br>DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR,<br>KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,<br>PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG,<br>US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM<br>RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR,<br>GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA,<br>GN, ML, MR, NE, SN, TD, TG |      |          |                 |          |
|      | AU 9747726  | A1   | 19980529 | AU 1997-47726   | 19971031 |
|      | EP 948610   | A1   | 19991013 | EP 1997-910270  | 19971031 |
|      | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, FI   |      |          |                 |          |
|      | CN 1235638  | A    | 19991117 | CN 1997-199434  | 19971031 |
|      | BR 9712473  | A    | 19991221 | BR 1997-12473   | 19971031 |
|      | JP 2002510191   | T2   | 20020402 | JP 1998-520957  | 19971031 |
|      | KR 2000053060   | A    | 20000825 | KR 1999-703970  | 19990504 |
| PRAI | DK 1996-1236  | A    | 19961104 |                 |          |
|      | DK 1997-784   | A    | 19970702 |                 |          |
|      | US 1997-52482P  | P    | 19970714 |                 |          |
|      | DK 1997-1198  | A    | 19971020 |                 |          |
|      | WO 1997-DK493   | W    | 19971031 |                 |          |

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 15 OF 24 MEDLINE DUPLICATE 1

AN 1998353360 MEDLINE

DN 98353360 PubMed ID: 9687432

TI Expression and secretion of defined cutinase variants by Aspergillus awamori.

AU van Gemeren I A; Beijersbergen A; van den Hondel C A; Verrips C T  
CS Department of Biotechnology, Unilever Research, 3133 AT Vlaardingen, The Netherlands.. ingeborg-van.gemeren@unilever.com

SO APPLIED AND ENVIRONMENTAL MICROBIOLOGY, (1998 Aug) 64 (8) 2794-9.  
Journal code: 7605801. ISSN: 0099-2240.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199809

ED Entered STN: 19981006

Last Updated on STN: 19981006

Entered Medline: 19980924

L7 ANSWER 16 OF 24 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI  
AN 1999-02398 BIOTECHDS

TI Expression and secretion of defined **cutinase variants**  
by Aspergillus awamori;

enzyme engineering for increased protein secretion

AU van Gemeren I A; Beijersbergen A; van den Hondel C A M J J

CS Unilever; TNO-Nutr.Food-Res.Inst.; Univ.Utrecht

LO Department of Biotechnology, Unilever Research, Olivier van Noortlaan  
120, 3133 AT Vlaardingen, The Netherlands.

Email: ingeborg-van-gemeren@unilever.com

SO Appl.Environ.Microbiol.; (1998) 64, 8, 2794-99

CODEN: AEMIDF ISSN: 0099-2240

DT Journal

LA English

L7 ANSWER 17 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.

AN 1997:264650 BIOSIS

DN PREV199799571253

TI Cloning of cutinase transcription factor 1, a transactivating protein  
containing Cys-6Zn-2 binuclear cluster DNA-binding motif.

AU Li, Daoxin; Kolattukudy, Pappachan E. (1)

CS (1) Neurobiotechnol. Cent., Ohio State Univ., 206 Rightmire Hall, 1060  
Carmack Rd., Columbus, OH 43210 USA

SO Journal of Biological Chemistry, (1997) Vol. 272, No. 19, pp. 12462-12467.  
ISSN: 0021-9258.

DT Article

LA English

L7 ANSWER 18 OF 24 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.DUPLICATE  
2

AN 1997:78363 BIOSIS

DN PREV199799385066

TI Dynamics of Fusarium solani **cutinase** investigated through  
structural comparison among different crystal forms of its  
variants.

AU Longhi, Sonia; Nicolas, Anne; Creveld, Lucia; Egmond, Maarten; Verrips, C.  
Theo; De Vlieg, Jakob; Martinez, Chrislaine; Cambillau, Christian (1)

CS (1) Lab. Cristallographie et Cristallisation Macromolecules Biol.,  
UPR9039, CNRS, IFR1, 31 Chemin Joseph Aiguier, 13402 Marseille Cedex 20  
France

SO Proteins Structure Function and Genetics, (1996) Vol. 26, No. 4, pp.  
442-458.

ISSN: 0887-3585.

DT Article

LA English

L7 ANSWER 19 OF 24 HCPLUS COPYRIGHT 2003 ACS

AN 1995:990655 HCPLUS

DN 124:24865

TI A method of preparing a variant of a lipolytic enzyme

IN Svendsen, Allan; Clausen, Ib Groth; Okkels, Jens Sigurd; Thellersen,  
Marianne

PA Novo Nordisk A/S, Den.

SO PCT Int. Appl., 85 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 5

| PATENT NO.  | KIND  | DATE     | APPLICATION NO. | DATE     |
|---|-------|----------|-----------------|----------|
| -----   | ----- | -----    | -----           | -----    |
| PI WO 9522615   | A1    | 19950824 | WO 1995-DK79    | 19950222 |
| W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI,<br>GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, |       |          |                 |          |

MN, MW, MX, NL, NO, PL, PT, RO, RU, SD, SE, SI, TJ, TT,  
UA, UG

RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT,  
LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE,  
SN, TD, TG

|   |              |          |                 |          |
|---|--------------|----------|-----------------|----------|
| CA 2183431  | AA           | 19950824 | CA 1995-2183431 | 19950222 |
| AU 9518067  | A1           | 19950904 | AU 1995-18067   | 19950222 |
| EP 746618   | A1           | 19961211 | EP 1995-909666  | 19950222 |
| EP 746618   | B1           | 20020821 |                 |          |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE |              |          |                 |          |
| CN 1147836  | A            | 19970416 | CN 1995-192164  | 19950222 |
| CN 1077598  | B            | 20020109 |                 |          |
| JP 09509058   | T2           | 19970916 | JP 1995-521525  | 19950222 |
| BR 9506861  | A            | 19970923 | BR 1995-6861    | 19950222 |
| AT 222604   | E            | 20020915 | AT 1995-909666  | 19950222 |
| FI 9603266  | A            | 19960821 | FI 1996-3266    | 19960821 |
| US 5976855  | A            | 19991102 | US 1996-701339  | 19960822 |
| PRAI  | DK 1994-217  | A        | 19940222        |          |
|   | WO 1995-DK79 | W        | 19950222        |          |

L7 ANSWER 20 OF 24 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI  
AN 1995-09267 BIOTECHDS

TI Cutinase from *Fusarium solani pisi* hydrolyzing triglyceride analogues.  
Effect of acyl chain length and position in the substrate molecule on  
activity and enantioselectivity;

enzyme characterization and site-directed mutagenesis

AU Marnesse M L M; Cox R C; Koops B C; \*Verheij H M; de Haas G H; Egmond M  
R; van der Hadden H T W M; de Vlieg J

CS Univ.Utrecht; Unilever

LO University of Utrecht, P.O. Box 80.083, 3508 TB Utrecht, The Netherlands.  
Email: m.marnesse@chem.ruu.nl.

SO Biochemistry; (1995) 34, 19, 6400-407  
CODEN: BICBWA ISSN: 0006-2960

DT Journal

LA English

L7 ANSWER 21 OF 24 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI  
AN 1996-01811 BIOTECHDS

TI Secretion of wild-type and mutant cutinases by *Saccharomyces cerevisiae*;  
*Fusarium solani pisi* enzyme engineering for improved activity and  
protein secretion (conference abstract)

AU Sagt C M J; Verrips C T

CS Univ.Utrecht; Unilever

LO Utrecht University, 3584 CH Utrecht, The Netherlands.

SO Yeast; (1995) 11, Spec.Iss., S594

CODEN: YESTE3 ISSN: 0749-503X  
17th International Conference on Yeast Genetics and Molecular Biology,  
Lisbon, Portugal, 10-16 June, 1995.

DT Journal

LA English

L7 ANSWER 22 OF 24 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI  
AN 1994-11303 BIOTECHDS

TI Eukaryotic cutinase variant with increased lipolytic  
activity;

enzyme engineering and expression of plasmid pUR7220 in *Saccharomyces*,  
*Aspergillus*, *Hansenula* or *Kluyveromyces* sp. for increased  
hydrophobicity for use in surfactant composition

PA Unilever

PI WO 9414963 7 Jul 1994

AI WO 1993-EP3550 9 Dec 1993

PRAI NL 1992-204025 18 Dec 1992

DT Patent

LA English

OS WPI: 1994-234698 [28]

L7 ANSWER 23 OF 24 HCPLUS COPYRIGHT 2003 ACS

AN 1994:626158 HCPLUS

DN 121:226158

TI Variation in cutinase, esterase, and chromosome patterns in [REDACTED] mutants of  
a transformed pathogenic strain of *Phytophthora capsici*  
AU Mena, G. L.; Munoz, C. I.; Guzman, P. A.; Bailey, A. M.  
CS Departamento de Ingenieria Genetica de Plantas, CINVESTAV, Irapuato, 36500,  
Mex.  
SO Phytopathology (1994), 84(5), 502-8  
CODEN: PHYTAJ; ISSN: 0031-949X  
DT Journal  
LA English

L7 ANSWER 24 OF 24 MEDLINE DUPLICATE 4  
AN 87056987 MEDLINE  
DN 87056987 PubMed ID: 3782031  
TI Isolation of a *Fusarium solani* mutant reduced in cutinase activity and  
virulence.  
AU Dantzig A H; Zuckerman S H; Andonov-Roland M M  
SO JOURNAL OF BACTERIOLOGY, (1986 Nov) 168 (2) 911-6.  
Journal code: 2985120R. ISSN: 0021-9193.  
CY United States  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 198612  
ED Entered STN: 19900302  
Last Updated on STN: 19970203  
Entered Medline: 19861224

=> dis his

(FILE 'HOME' ENTERED AT 19:58:59 ON 04 MAR 2003)

FILE 'MEDLINE, SCISEARCH, LIFESCI, BIOTECHDS, BIOSIS, EMBASE, HCPLUS,  
NTIS, ESBIOSBASE, BIOTECHNO, WPIDS' ENTERED AT 19:59:06 ON 04 MAR 2003

L1 131 S CUTINASE (10A) (VARIANT OR MUTAT?)  
L2 48 S L1 AND (THERMO? OR TEMPERAT?)  
L3 57 S L1 AND FUNG?  
L4 22 S L2 AND L3  
L5 14 DUP REM L4 (8 DUPLICATES REMOVED)  
L6 35 S L3 NOT L4  
L7 24 DUP REM L6 (11 DUPLICATES REMOVED)

FILE 'STNGUIDE' ENTERED AT 20:09:29 ON 04 MAR 2003

FILE 'MEDLINE, BIOTECHDS, BIOSIS, HCPLUS' ENTERED AT 20:10:32 ON 04 MAR  
2003

FILE 'STNGUIDE' ENTERED AT 20:10:36 ON 04 MAR 2003

=> log h

| COST IN U.S. DOLLARS                       | SINCE FILE ENTRY | TOTAL SESSION |
|--|------------------|---------------|
| FULL ESTIMATED COST                        | 0.12             | 84.51         |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
| CA SUBSCRIBER PRICE                        | 0.00             | -0.65         |

SESSION WILL BE HELD FOR 60 MINUTES  
STN INTERNATIONAL SESSION SUSPENDED AT 20:11:44 ON 04 MAR 2003

# WEST Search History

DATE: Tuesday, March 04, 2003

| <u>Set Name</u>                                      | <u>Query</u>                        | <u>Hit Count</u> | <u>Set Name</u> |
|--|-------------------------------------|------------------|-----------------|
| side by side   |                                     |                  | result set      |
| <i>DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ</i> |                                     |                  |                 |
| L2   | L1 and fung\$                       | 26               | L2              |
| L1   | cutinase near10 (mutat? or variant) | 32               | L1              |

END OF SEARCH HISTORY

WEST

**Search Results - Record(s) 1 through 10 of 32 returned.** 1. Document ID: US 20030008361 A1

L1: Entry 1 of 32

File: PGPB

Jan 9, 2003

PGPUB-DOCUMENT-NUMBER: 20030008361

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030008361 A1

TITLE: Process for the preparation of substituted 3-phenyl-propanoic acid esters and substituted 3-phenyl-propanoic acids

PUBLICATION-DATE: January 9, 2003

## INVENTOR- INFORMATION:

| NAME                    | CITY         | STATE | COUNTRY | RULE-47 |
|-------------------------|--------------|-------|---------|---------|
| Ebdrup, Soren           | Kobenhavn O  |       | DK      |         |
| Deussen, Heinz-Josef W. | Soborg       |       | DK      |         |
| Zundel, Magali          | Soborg       |       | DK      |         |
| Bury, Paul Stanley      | Kobenhavn NV |       | DK      |         |

US-CL-CURRENT: 435/135; 435/136              2. Document ID: US 20020137661 A1

L1: Entry 2 of 32

File: PGPB

Sep 26, 2002

PGPUB-DOCUMENT-NUMBER: 20020137661

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020137661 A1

TITLE: METHOD FOR CREATING POLYNUCLEOTIDE AND POLYPEPTIDE SEQUENCES

PUBLICATION-DATE: September 26, 2002

## INVENTOR- INFORMATION:

| NAME             | CITY           | STATE | COUNTRY | RULE-47 |
|------------------|----------------|-------|---------|---------|
| ARNOLD, FRANCES  | PASADENA       | CA    | US      |         |
| SHAO, ZHIXIN     | PENZBERG       | DE    | US      |         |
| VOLKO, ALEXANDER | SOUTH PASADENA | CA    | US      |         |

US-CL-CURRENT: 514/1              3. Document ID: US 20020123123 A1

L1: Entry 3 of 32

File: PGPB

Sep 5, 2002

PGPUB-DOCUMENT-NUMBER: 20020123123  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020123123 A1

TITLE: Cutinase variants

PUBLICATION-DATE: September 5, 2002

## INVENTOR-INFORMATION:

| NAME                    | CITY     | STATE | COUNTRY | RULE-47 |
|-------------------------|----------|-------|---------|---------|
| Svendsen, Allan         | Horsholm |       | DK      |         |
| Glad, Sanne O. Schroder | Ballerup |       | DK      |         |
| Fukuyama, Shiro         | Chiba    |       | JP      |         |
| Matsui, Tomoko          | Chiba    |       | JP      |         |

US-CL-CURRENT: 435/200; 435/252.3, 435/254.2, 435/320.1, 435/69.1, 536/23.2

|      |       |          |       |        |                |      |           |           |             |        |     |           |       |
|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|-----|-----------|-------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMC | Draw Desc | Image |
|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|--------|-----|-----------|-------|

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 4. Document ID: US 20020068352 A1

L1: Entry 4 of 32

File: PGPB

Jun 6, 2002

PGPUB-DOCUMENT-NUMBER: 20020068352  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020068352 A1

TITLE: Alpha-amylase variants with altered 1, 6-activity

PUBLICATION-DATE: June 6, 2002

## INVENTOR-INFORMATION:

| NAME                     | CITY        | STATE | COUNTRY | RULE-47 |
|--------------------------|-------------|-------|---------|---------|
| Svendsen, Allan          | Horsholm    |       | DK      |         |
| Jorgensen, Christel Thea | Kobenhavn O |       | DK      |         |
| Nielsen, Bjarne Ronfeldt | Virum       |       | DK      |         |

US-CL-CURRENT: 435/202; 435/183, 435/195, 435/69.1, 510/392, 510/393

|      |       |          |       |        |                |      |           |           |             |     |           |       |
|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|-----|-----------|-------|
| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KMC | Draw Desc | Image |
|------|-------|----------|-------|--------|----------------|------|-----------|-----------|-------------|-----|-----------|-------|

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 5. Document ID: US 20020066144 A1

L1: Entry 5 of 32

File: PGPB

Jun 6, 2002

PGPUB-DOCUMENT-NUMBER: 20020066144  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20020066144 A1

TITLE: Redeposition or backstain inhibition during stonewashing process

PUBLICATION-DATE: June 6, 2002

## INVENTOR-INFORMATION:

|                |                  |       |         |         |
|----------------|------------------|-------|---------|---------|
| NAME           | CITY             | STATE | COUNTRY | RULE-47 |
| Uyama, Naoto   | Chiba-prefecture |       | JP      |         |
| Daimon, Kosaku | Chiba-ken        |       | JP      |         |

US-CL-CURRENT: 8/115.51

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [KMLC](#) | [Drawn Desc](#) | [Image](#)

 6. Document ID: US 20010039253 A1

L1: Entry 6 of 32

File: PGPB

Nov 8, 2001

PGPUB-DOCUMENT-NUMBER: 20010039253  
 PGPUB-FILING-TYPE: new  
 DOCUMENT-IDENTIFIER: US 20010039253 A1

TITLE: Alpha-amylase mutants

PUBLICATION-DATE: November 8, 2001

## INVENTOR-INFORMATION:

|                           |                 |       |         |         |
|---------------------------|-----------------|-------|---------|---------|
| NAME                      | CITY            | STATE | COUNTRY | RULE-47 |
| Borchert, Torben Vedel    | Copenhagen O    |       | DK      |         |
| Svendsen, Allan           | Birkerod        |       | DK      |         |
| Andersen, Carsten         | Vaerloese       |       | DK      |         |
| Nielsen, Bjarne           | Virum           |       | DK      |         |
| Nissen, Torben Lauesgaard | Frederiksberg C |       | DK      |         |
| Kjarulff, Soren           | Vanlose         |       | DK      |         |

US-CL-CURRENT: 510/392; 510/305, 510/306

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [KMLC](#) | [Drawn Desc](#) | [Image](#)

 7. Document ID: US 6495357 B1

L1: Entry 7 of 32

File: USPT

Dec 17, 2002

US-PAT-NO: 6495357  
 DOCUMENT-IDENTIFIER: US 6495357 B1

TITLE: Lipolytic enzymes

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [KMLC](#) | [Drawn Desc](#) | [Image](#)

 8. Document ID: US 6436888 B1

L1: Entry 8 of 32

File: USPT

Aug 20, 2002

US-PAT-NO: 6436888  
 DOCUMENT-IDENTIFIER: US 6436888 B1

TITLE: .alpha.-amylase mutants

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KMC](#) | [Draw Desc](#) | [Image](#) 9. Document ID: US 6436643 B1

L1: Entry 9 of 32

File: USPT

Aug 20, 2002

US-PAT-NO: 6436643

DOCUMENT-IDENTIFIER: US 6436643 B1

TITLE: Process for site-directed integration of multiple copies of a gene in a mould

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KMC](#) | [Draw Desc](#) | [Image](#) 10. Document ID: US 6361989 B1

L1: Entry 10 of 32

File: USPT

Mar 26, 2002

US-PAT-NO: 6361989

DOCUMENT-IDENTIFIER: US 6361989 B1

TITLE: .alpha.-amylase and .alpha.-amylase variants

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KMC](#) | [Draw Desc](#) | [Image](#)[Generate Collection](#)[Print](#)

| Terms                               | Documents |
|-------------------------------------|-----------|
| cutinase near10 (mutat? or variant) | 32        |

Display Format:  [Previous Page](#)    [Next Page](#)



US006495357B1

(12) **United States Patent**  
Fuglsang et al.

(10) Patent No.: **US 6,495,357 B1**  
(45) Date of Patent: **Dec. 17, 2002**

(54) **LIPOLYTIC ENZYMES**

(75) Inventors: Claus Crone Fuglsang, Niva; Jens Sigurd Okkels, Frederiksberg; Dorte Aaby Petersen, Birkerod; Shamkant Anant Patkar, Lyngby; Marianne Thellersen, Frederiksberg; Allan Svendsen, Birkerød; Klm Borch, Copenhagen, all of (DK); John C. Royer, Davis, CA (US); Titus Kretzschmar, Værloese (DK); Torben Halkier, Birkerød (DK); Jesper Vind, Lyngby (DK); Steen Troels Jorgensen, Alleroed (DK)

(73) Assignee: Novozyme A/S, Bagsvaerd (DK)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/007,288**(22) Filed: **Jan. 14, 1998****Related U.S. Application Data**

(63) Continuation-in-part of application No. PCT/DK96/00322, filed on Jul. 12, 1996, and a continuation-in-part of application No. PCT/DK96/00341, filed on Aug. 12, 1996.

(60) Provisional application No. 60/011,627, filed on Feb. 14, 1996, provisional application No. 60/011,634, filed on Feb. 14, 1996, provisional application No. 60/016,754, filed on May 7, 1996, and provisional application No. 60/020,461, filed on May 7, 1996.

**Foreign Application Priority Data**

|               |      |         |
|---------------|------|---------|
| Jul. 14, 1995 | (DK) | 0832/95 |
| Aug. 11, 1995 | (DK) | 0905/95 |
| Sep. 13, 1995 | (DK) | 1013/95 |
| Sep. 29, 1995 | (DK) | 1096/95 |
| Nov. 21, 1995 | (DK) | 1306/95 |
| Apr. 1, 1996  | (DK) | 0372/96 |
| Apr. 1, 1996  | (DK) | 0374/96 |

(51) Int. Cl.<sup>7</sup> ..... C12N 9/20(52) U.S. Cl. ..... 435/198; 435/195; 435/196;  
435/197(58) Field of Search ..... 435/183, 198,  
435/195, 196, 197**(56) References Cited****U.S. PATENT DOCUMENTS**

5,892,013 A \* 4/1999 Svendsen et al. .... 536/23.2

**FOREIGN PATENT DOCUMENTS**

|    |             |           |
|----|-------------|-----------|
| EP | 0 214 761   | 3/1987    |
| WO | WO 92/05249 | 4/1992    |
| WO | WO 93/01285 | 1/1993    |
| WO | WO 94/03578 | 2/1994    |
| WO | WO 94/14964 | 7/1994    |
| WO | WO 94/25578 | * 11/1994 |

**OTHER PUBLICATIONS**

Lunn, C. et al., M.in Enzym., vol. 125, pp. 138-149, 1986.\*  
Japanese Application including translation of Asahi Kasei  
Kogyo KK, JP 6113845.

\* cited by examiner

Primary Examiner—Nashaat T. Nashed

(74) Attorney, Agent, or Firm—Elias J. Lambiris; Jason I. Garbell

**(57) ABSTRACT**

The present invention relates to a modified enzyme with lipolytic activity, a lipolytic enzyme capable of removing a substantial amount of fatty matter a one cycle wash, a DNA sequence encoding said enzymes, a vector comprising said DNA sequence, a host cell harbouring said DNA sequence or said vector, and a process for producing said enzymes with lipolytic activity.

**63 Claims, 22 Drawing Sheets**

**WEST**[Generate Collection](#)[Print](#)**Search Results - Record(s) 11 through 20 of 32 returned.**

11. Document ID: US 6239093 B1

L1: Entry 11 of 32

File: USPT

May 29, 2001

US-PAT-NO: 6239093

DOCUMENT-IDENTIFIER: US 6239093 B1

TITLE: Liquid cleaning compositions and shampoos containing dianionic or alkoxyolated dianionic surfactants

[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Draw Desc](#) [Image](#)

12. Document ID: US 6204232 B1

L1: Entry 12 of 32

File: USPT

Mar 20, 2001

US-PAT-NO: 6204232

DOCUMENT-IDENTIFIER: US 6204232 B1

TITLE: .alpha.-amlase mutants

[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Draw Desc](#) [Image](#)

13. Document ID: US 6197565 B1

L1: Entry 13 of 32

File: USPT

Mar 6, 2001

US-PAT-NO: 6197565

DOCUMENT-IDENTIFIER: US 6197565 B1

TITLE: .alpha.-Amylase variants

[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Draw Desc](#) [Image](#)

14. Document ID: US 6187576 B1

L1: Entry 14 of 32

File: USPT

Feb 13, 2001

US-PAT-NO: 6187576

DOCUMENT-IDENTIFIER: US 6187576 B1

TITLE: .alpha.-amylase mutants

[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Draw Desc](#) [Image](#)

15. Document ID: US 6143708 A

L1: Entry 15 of 32

File: USPT

Nov 7, 2000

US-PAT-NO: 6143708

DOCUMENT-IDENTIFIER: US 6143708 A

TITLE: .alpha.-amylase mutants

[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Drawn Desc](#) [Image](#) 16. Document ID: US 6133220 A

L1: Entry 16 of 32

File: USPT

Oct 17, 2000

US-PAT-NO: 6133220

DOCUMENT-IDENTIFIER: US 6133220 A

TITLE: Detergent compositions containing a lipase variant at low levels

[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Drawn Desc](#) [Image](#) 17. Document ID: US 6087321 A

L1: Entry 17 of 32

File: USPT

Jul 11, 2000

US-PAT-NO: 6087321

DOCUMENT-IDENTIFIER: US 6087321 A

TITLE: Detergent compositions containing amines, alkyl sulfates, and other anionic surfactants

[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Drawn Desc](#) [Image](#) 18. Document ID: US 6087309 A

L1: Entry 18 of 32

File: USPT

Jul 11, 2000

US-PAT-NO: 6087309

DOCUMENT-IDENTIFIER: US 6087309 A

TITLE: Liquid cleaning compositions containing selected mid-chain branched surfactants

[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Drawn Desc](#) [Image](#) 19. Document ID: US 6046152 A

L1: Entry 19 of 32

File: USPT

Apr 4, 2000

US-PAT-NO: 6046152

DOCUMENT-IDENTIFIER: US 6046152 A

TITLE: Liquid cleaning compositions containing selected mid-chain branched

surfactants

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)

[KMC](#) | [Draw Desc](#) | [Image](#)

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20. Document ID: US 6017874 A

L1: Entry 20 of 32

File: USPT

Jan 25, 2000

US-PAT-NO: 6017874

DOCUMENT-IDENTIFIER: US 6017874 A

TITLE: Liquid laundry detergents containing selected quaternary ammonium compounds

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)

[KMC](#) | [Draw Desc](#) | [Image](#)

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| Terms                               | Documents |
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| cutinase near10 (mutat? or variant) | 32        |

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L1: Entry 21 of 32

File: USPT

Aug 10, 1999

US-PAT-NO: 5935271

DOCUMENT-IDENTIFIER: US 5935271 A

TITLE: Laundry detergent compositions containing lipolytic enzyme and amines

[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Draw Desc](#) [Image](#) 22. Document ID: US 5929022 A

L1: Entry 22 of 32

File: USPT

Jul 27, 1999

US-PAT-NO: 5929022

DOCUMENT-IDENTIFIER: US 5929022 A

TITLE: Detergent compositions containing amine and specially selected perfumes

[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Draw Desc](#) [Image](#) 23. Document ID: US 5916862 A

L1: Entry 23 of 32

File: USPT

Jun 29, 1999

US-PAT-NO: 5916862

DOCUMENT-IDENTIFIER: US 5916862 A

TITLE: Detergent compositions containing amines and anionic surfactants

[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Draw Desc](#) [Image](#) 24. Document ID: US 5837010 A

L1: Entry 24 of 32

File: USPT

Nov 17, 1998

US-PAT-NO: 5837010

DOCUMENT-IDENTIFIER: US 5837010 A

TITLE: Detergent compositions containing a lipase variant at low levels

[Full](#) [Title](#) [Citation](#) [Front](#) [Review](#) [Classification](#) [Date](#) [Reference](#) [Sequences](#) [Attachments](#)[KMC](#) [Draw Desc](#) [Image](#)

25. Document ID: WO 9414964 A1

L1: Entry 25 of 32

File: EPAB

Jul 7, 1994

PUB-NO: WO009414964A1

DOCUMENT-IDENTIFIER: WO 9414964 A1

TITLE: MODIFIED CUTINASES, DNA, VECTOR AND HOST

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KMC](#) | [Draw Desc](#) | [Image](#) 26. Document ID: WO 9414963 A1

L1: Entry 26 of 32

File: EPAB

Jul 7, 1994

PUB-NO: WO009414963A1

DOCUMENT-IDENTIFIER: WO 9414963 A1

TITLE: MODIFIED CUTINASES, DNA, VECTOR AND HOST

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KMC](#) | [Draw Desc](#) | [Image](#) 27. Document ID: WO 200192502 A1 AU 200160085 A

L1: Entry 27 of 32

File: DWPI

Dec 6, 2001

DERWENT-ACC-NO: 2002-216714

DERWENT-WEEK: 200228

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TITLE: Variant of parent fungal cutinase for enzymatic hydrolysis of cyclic oligomers of poly(ethylene terephthalate), comprises a substitution of amino acid residues corresponding to positions of Humicola insolens cutinase

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KMC](#) | [Draw Desc](#) | [Image](#) 28. Document ID: WO 200034450 A1 CN 1329664 A AU 200015038 A BR 9915832 A EP 1137761 A1 KR 2001081059 A

L1: Entry 28 of 32

File: DWPI

Jun 15, 2000

DERWENT-ACC-NO: 2000-482424

DERWENT-WEEK: 200227

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TITLE: Thermostable variant of parent fungal cutinase useful for dyeing polyester yarn or fabric, comprises substitution of amino acid residues at predetermined positions from the N-terminal amino acid

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KMC](#) | [Draw Desc](#) | [Image](#) 29. Document ID: WO 9743376 A1 MX 9809589 A1 AU 9658617 A BR 9612611 A CN 1224454 A JP 11511778 W

L1: Entry 29 of 32

File: DWPI

Nov 20, 1997

DERWENT-ACC-NO: 1998-008848  
DERWENT-WEEK: 200051  
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TITLE: Detergent composition for cleaning hard surfaces and laundry, etc. - comprises specific lipolytic enzyme and second lipolytic enzyme giving improved whiteness maintenance to fabrics

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [KMC](#) | [Draw Desc](#) | [Image](#)

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30. Document ID: WO 9414964 A1 BR 9307722 A AU 9457000 A ZA 9309416 A SK 9500802 A3 CZ 9501639 A3 JP 08504589 W CN 1090329 A HU 71315 T EP 802981 A1

L1: Entry 30 of 32

File: DWPI

Jul 7, 1994

DERWENT-ACC-NO: 1994-234699

DERWENT-WEEK: 200002

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TITLE: Eukaryotic cutinase variants with improved lipolytic activity - with modified amino acid structure to improve compatibility with anionic surfactants

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|-------------------------------------|-----------|
| cutinase near10 (mutat? or variant) | 32        |

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31. Document ID: WO 9414963 A1 BR 9307678 A AU 9456999 A ZA 9309415 A EP 679188 A1 SK 9500795 A3 CZ 9501578 A3 JP 08504588 W CN 1090328 A HU 71325 T

L1: Entry 31 of 32

File: DWPI

Jul 7, 1994

DERWENT-ACC-NO: 1994-234698

DERWENT-WEEK: 200002

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TITLE: Eukaryotic cutinase variants with improved lipolytic activity - useful in detergent compsns., with modified amino acid compsn. to increase hydrophobicity

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)[KINIC](#) | [Drawn Desc](#) | [Image](#)

32. Document ID: WO 9407989 A1 ES 2102677 T3 AU 9348184 A EP 662121 A1 JP 08502087 W EP 662121 B1 DE 69310526 E

L1: Entry 32 of 32

File: DWPI

Apr 14, 1994

DERWENT-ACC-NO: 1994-135560

DERWENT-WEEK: 199737

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TITLE: Ultrasonic cleaning process for fabric, dishes etc - comprising dipping object in aq. cleaning medium contg lipolytic enzyme, and treating with ultrasound

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| Terms                               | Documents |
|-------------------------------------|-----------|
| cutinase near10 (mutat? or variant) | 32        |

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